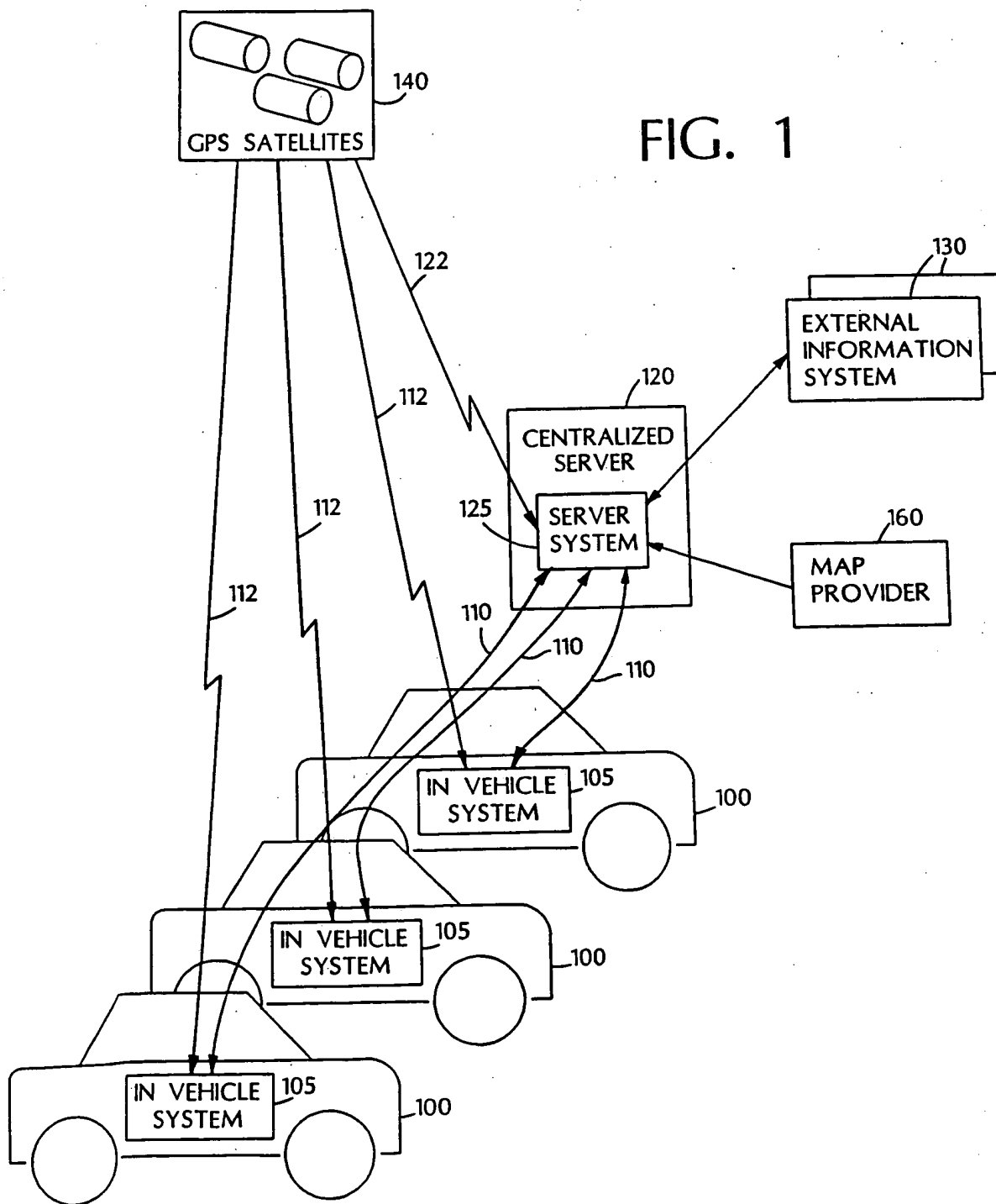


FIG. 1



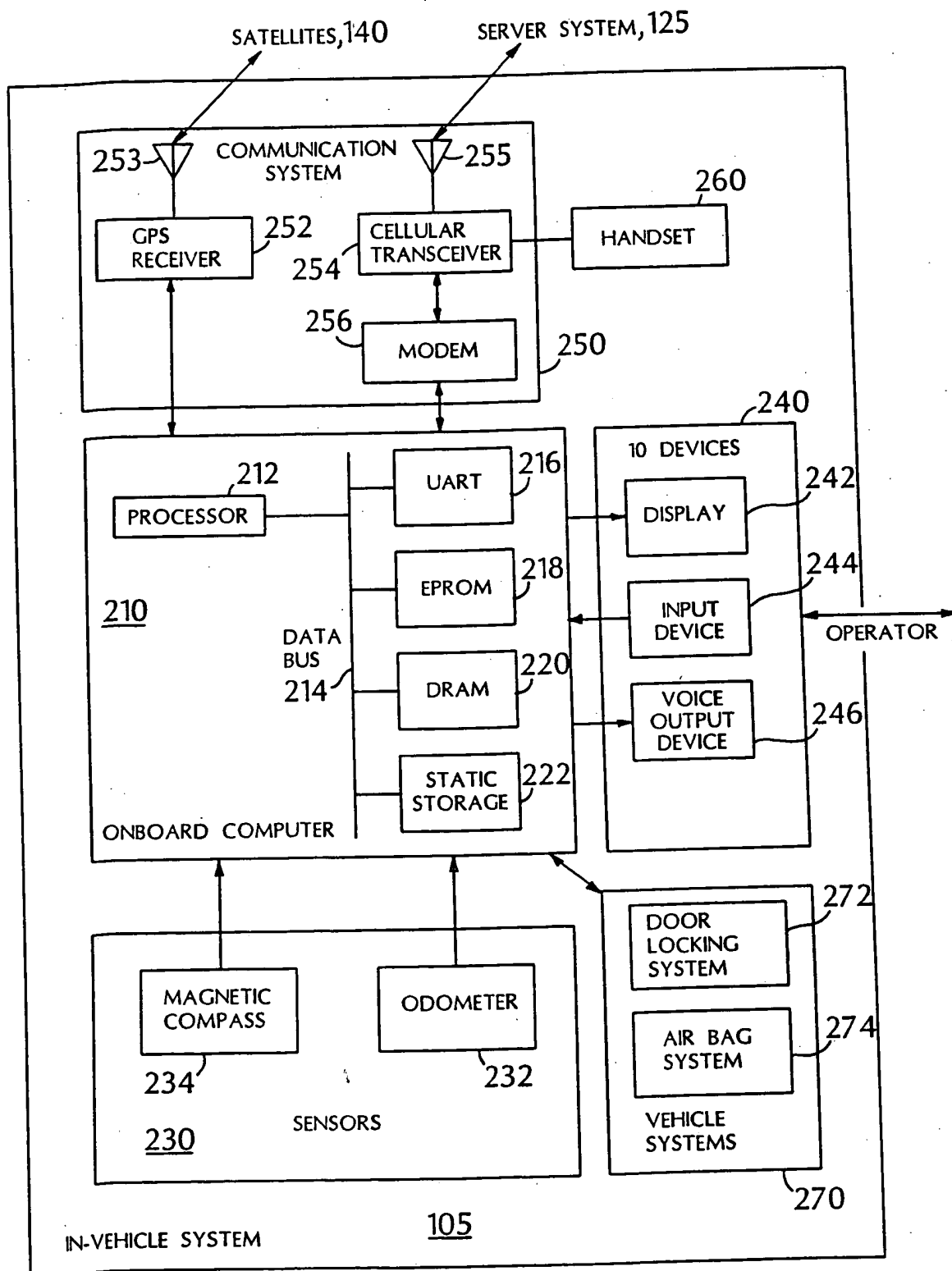


FIG. 2

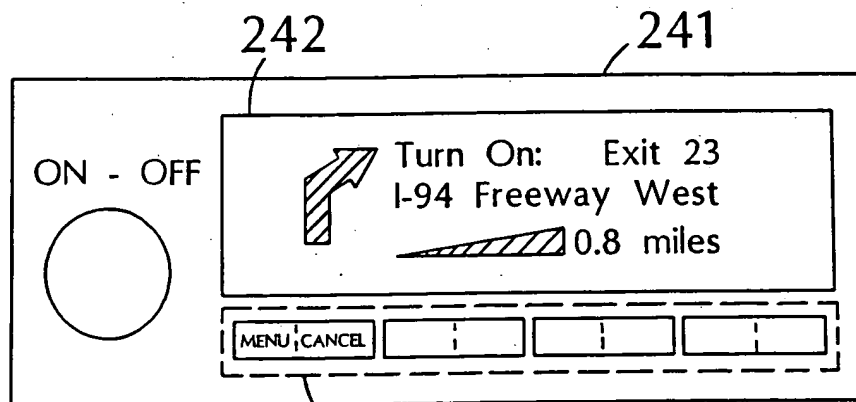


FIG. 2A

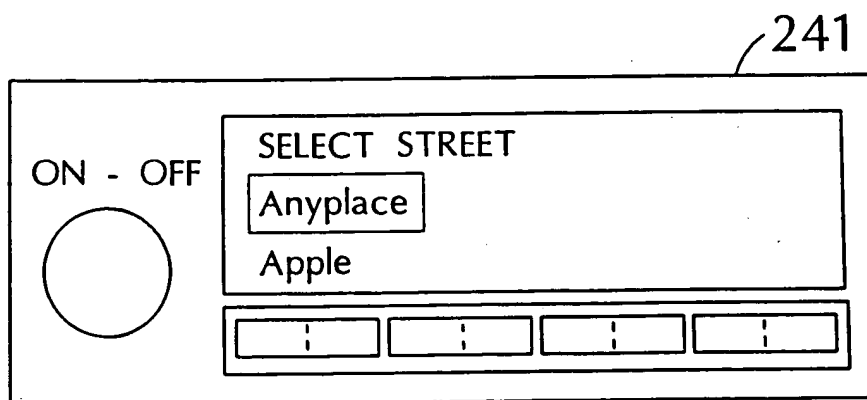


FIG. 2B

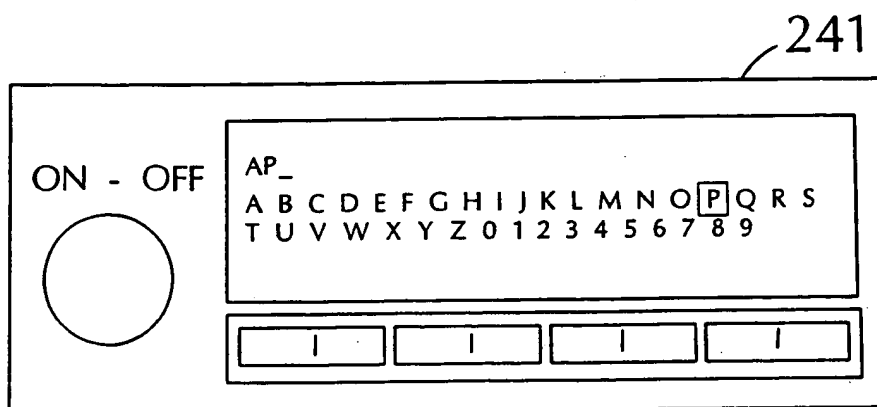


FIG. 2C

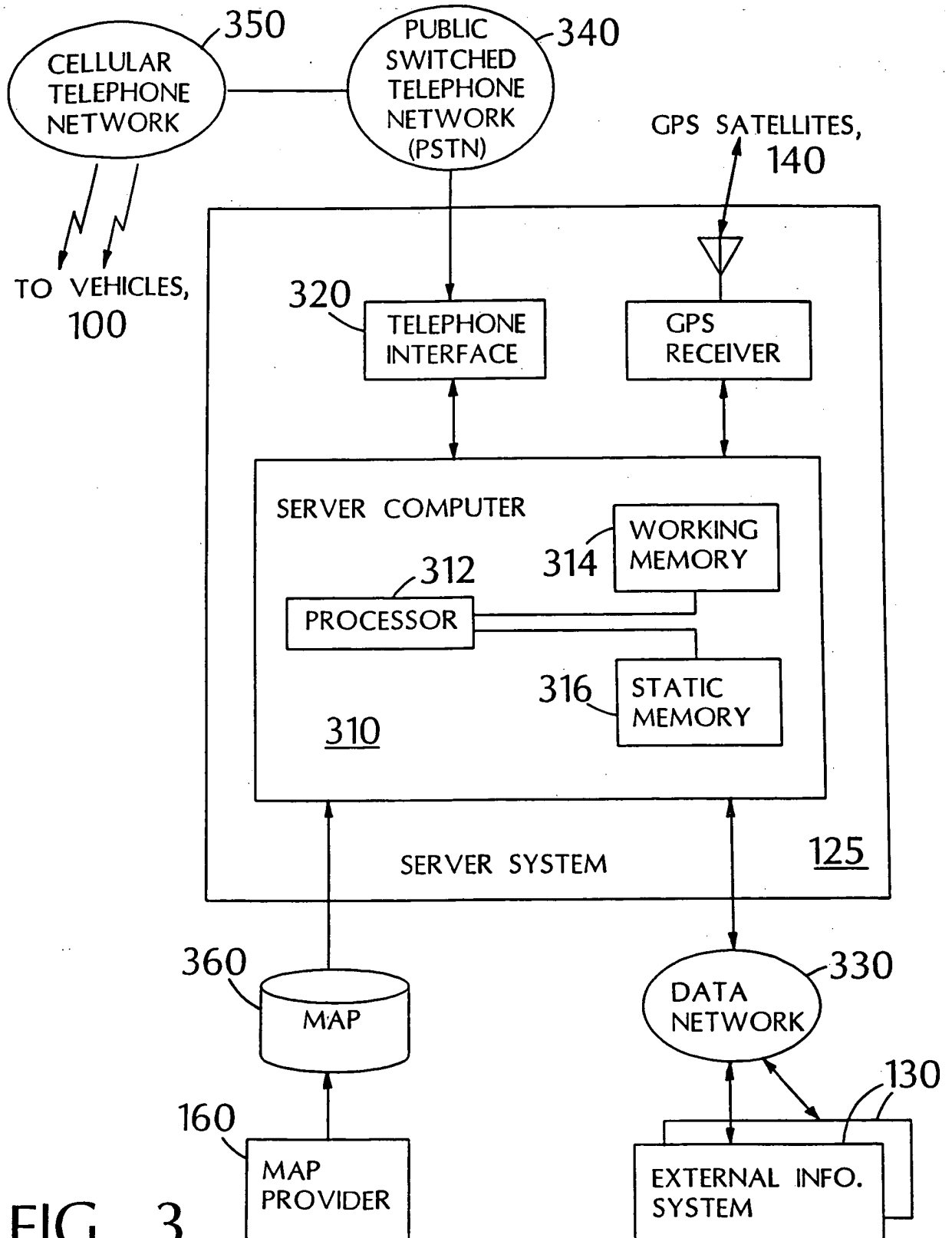


FIG. 3

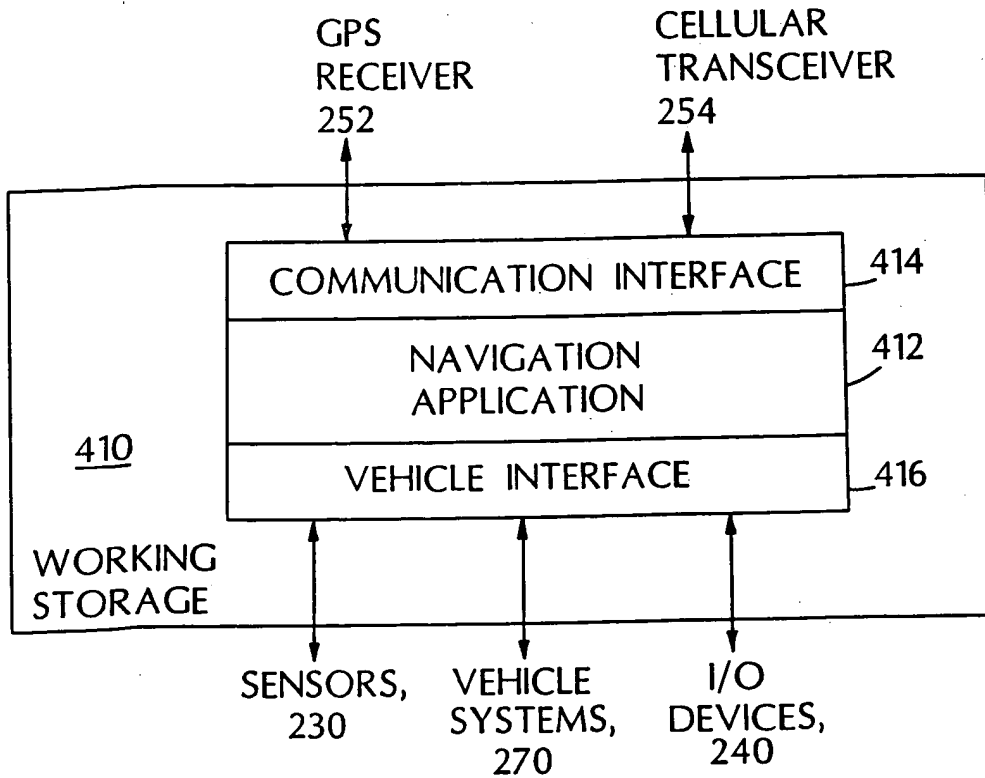


FIG. 4A

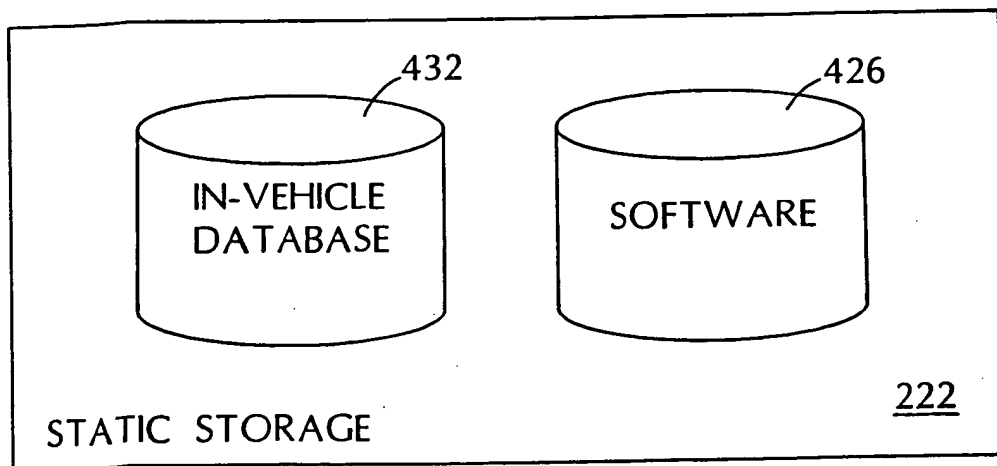


FIG. 4B

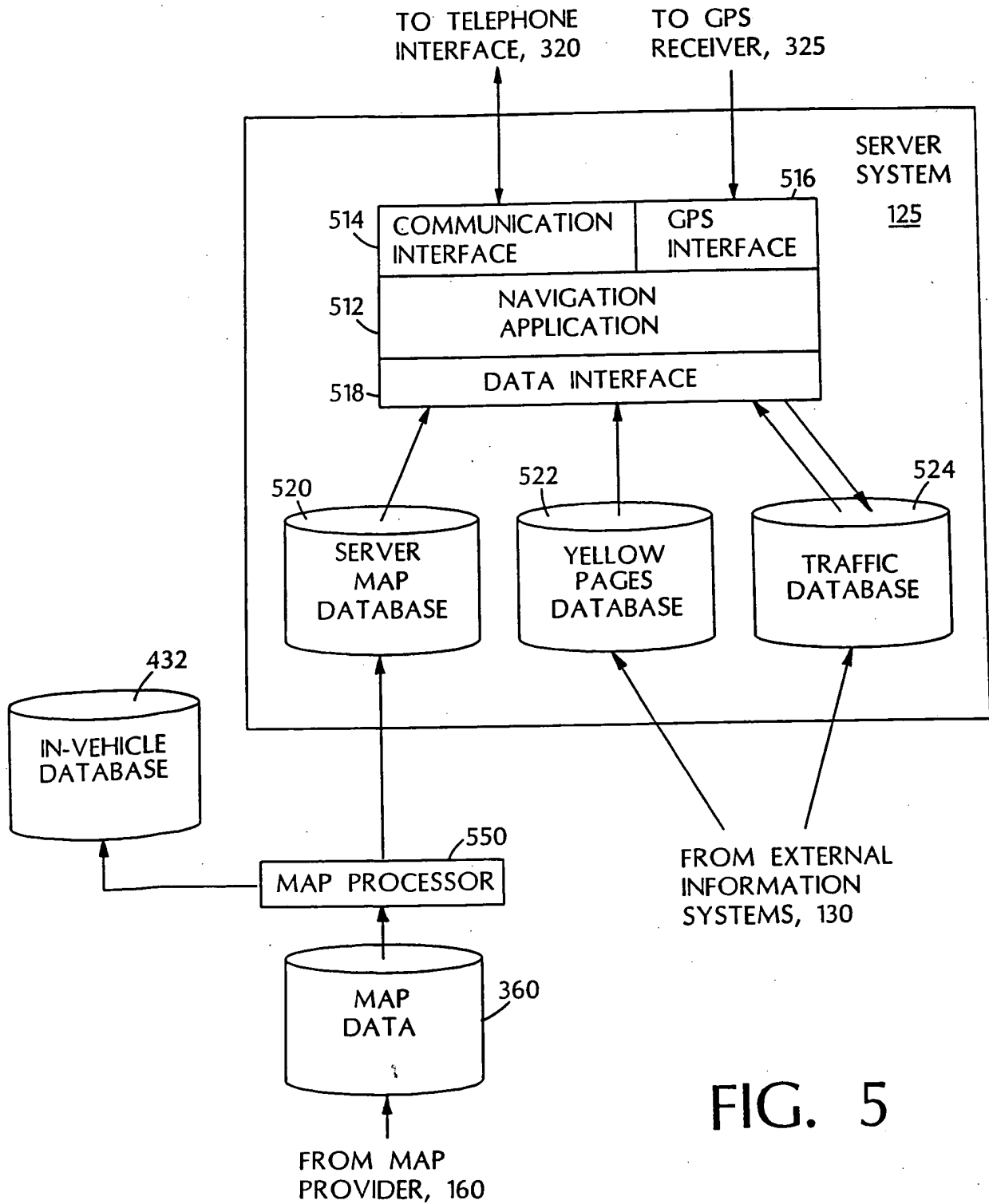


FIG. 5

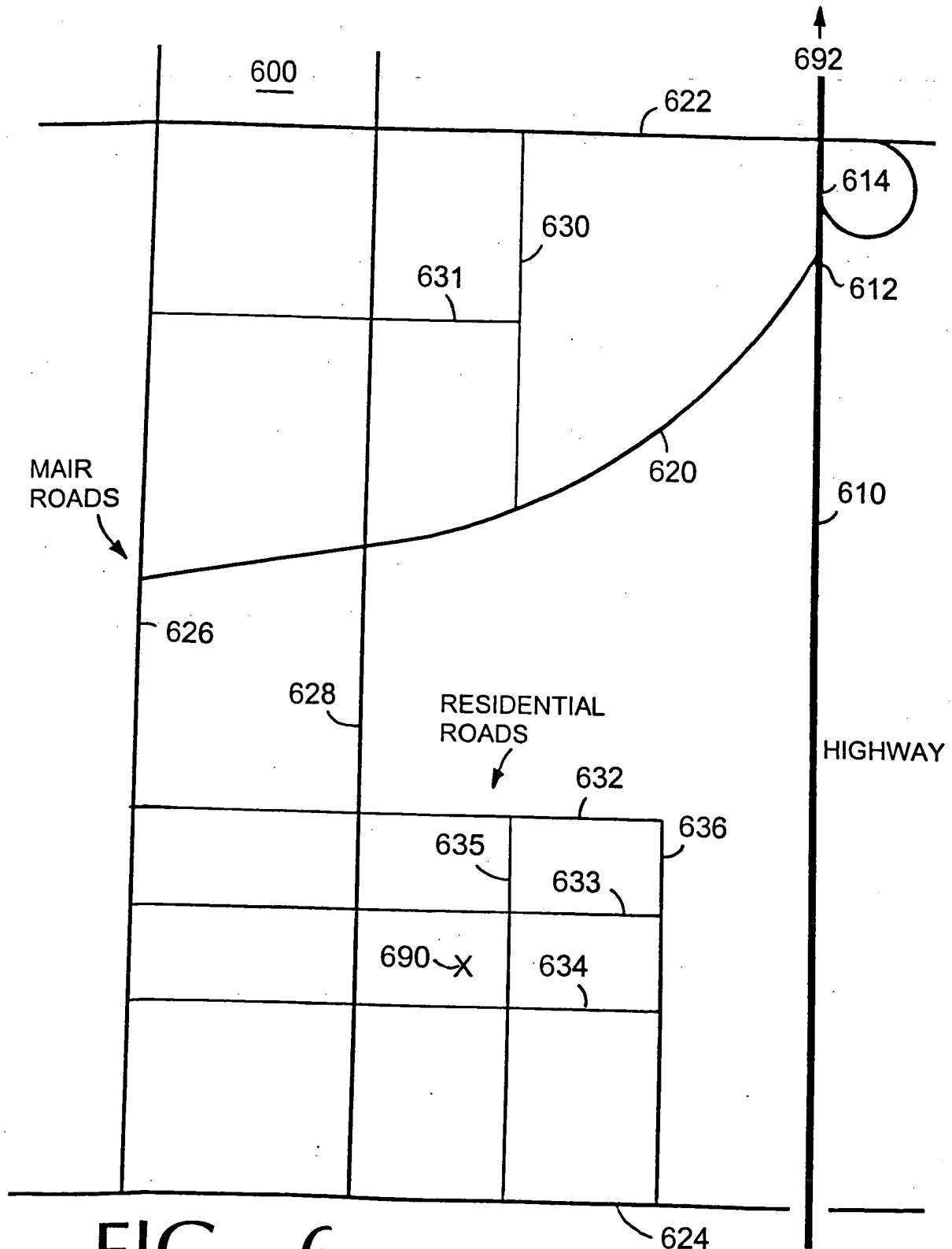


FIG 6





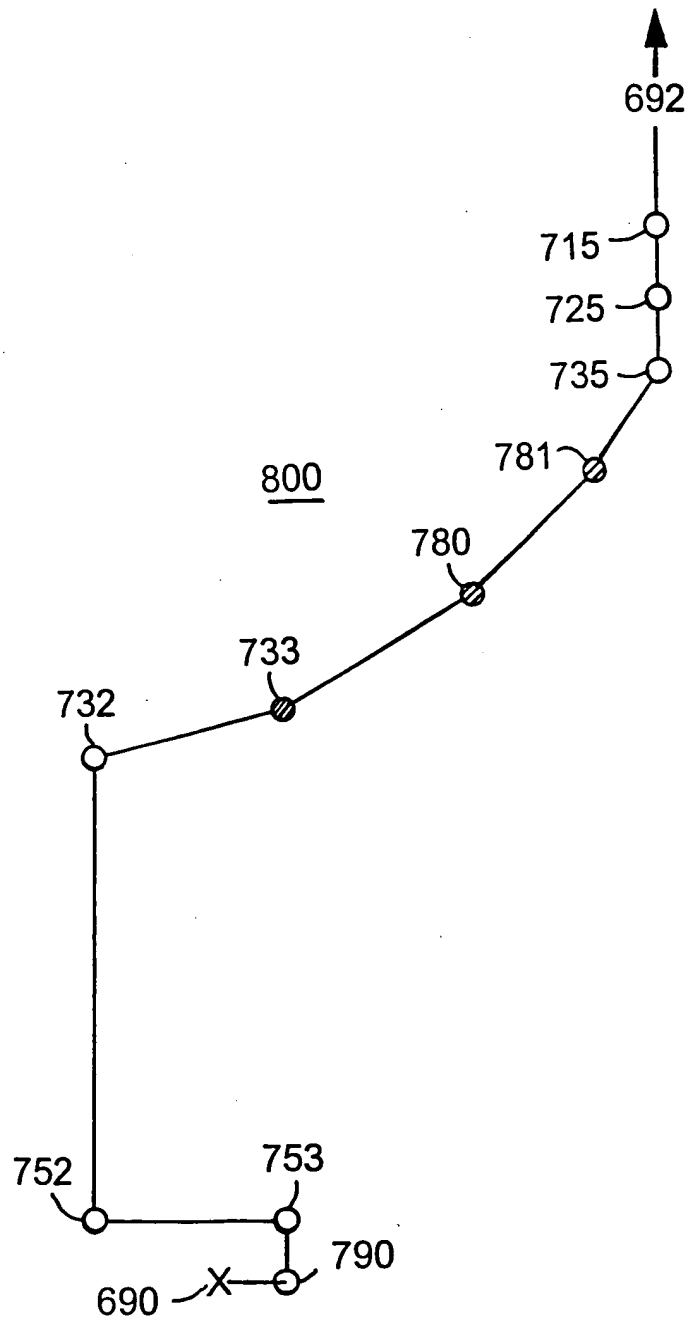
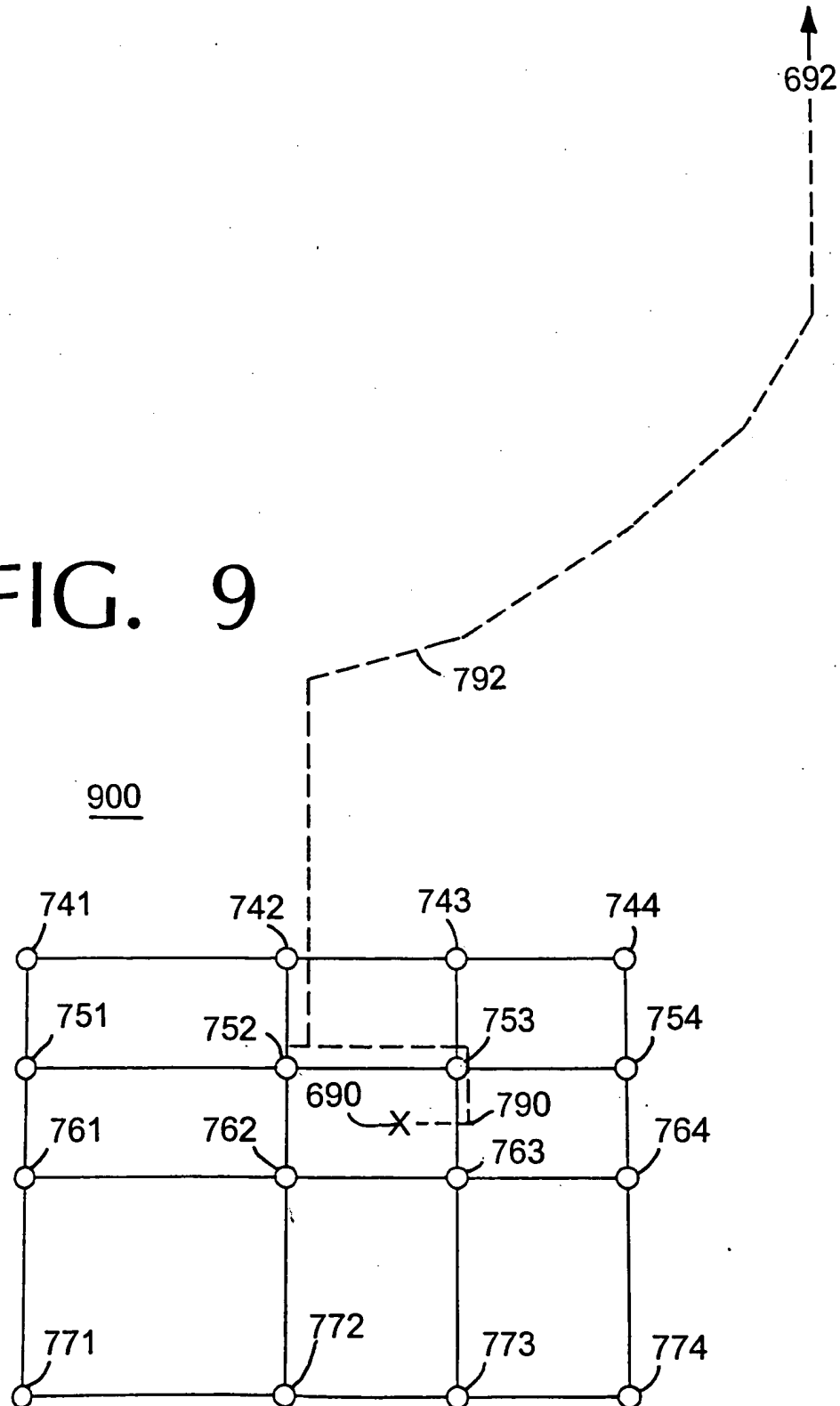


FIG 8

FIG. 9



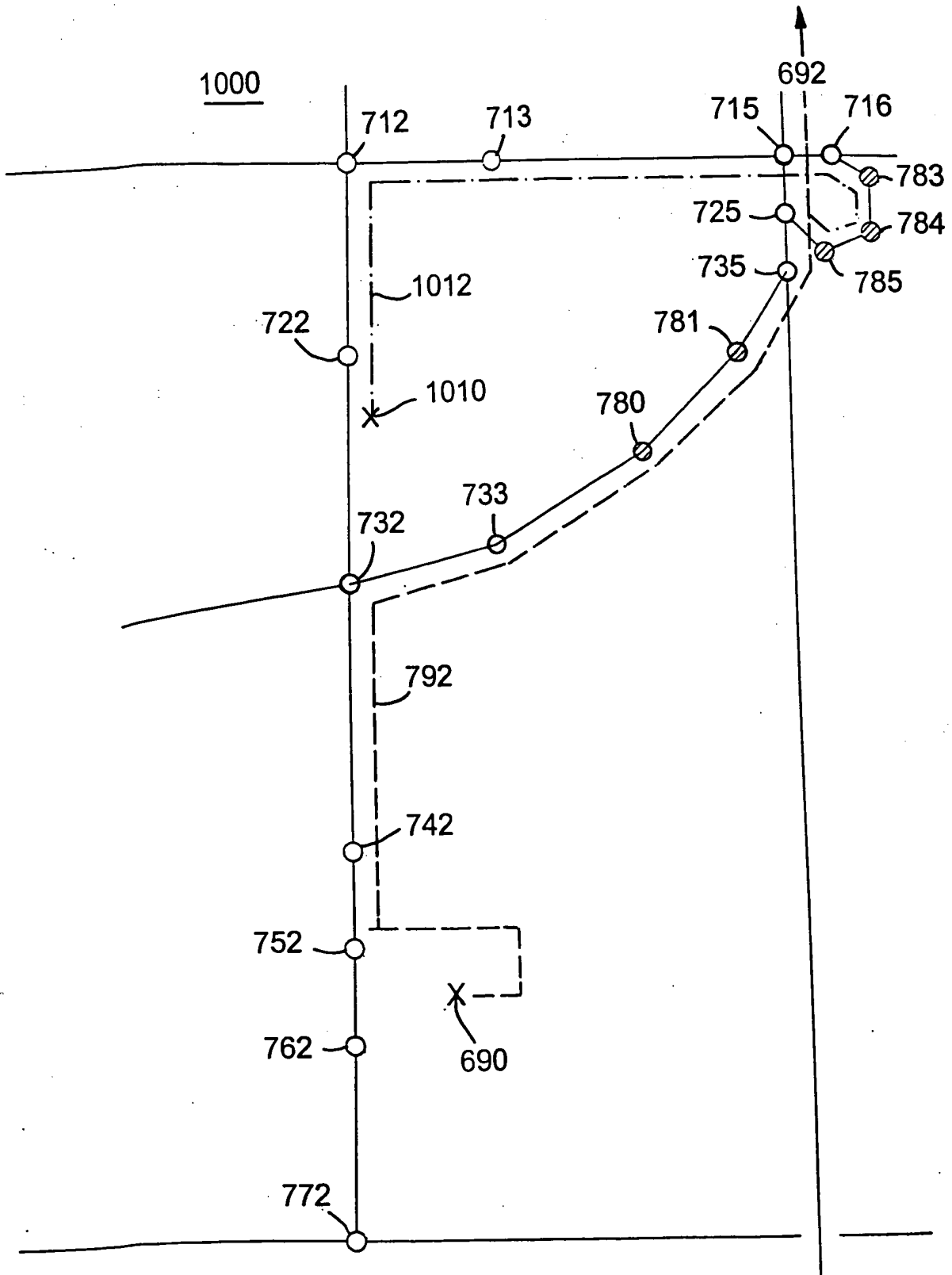


FIG 10

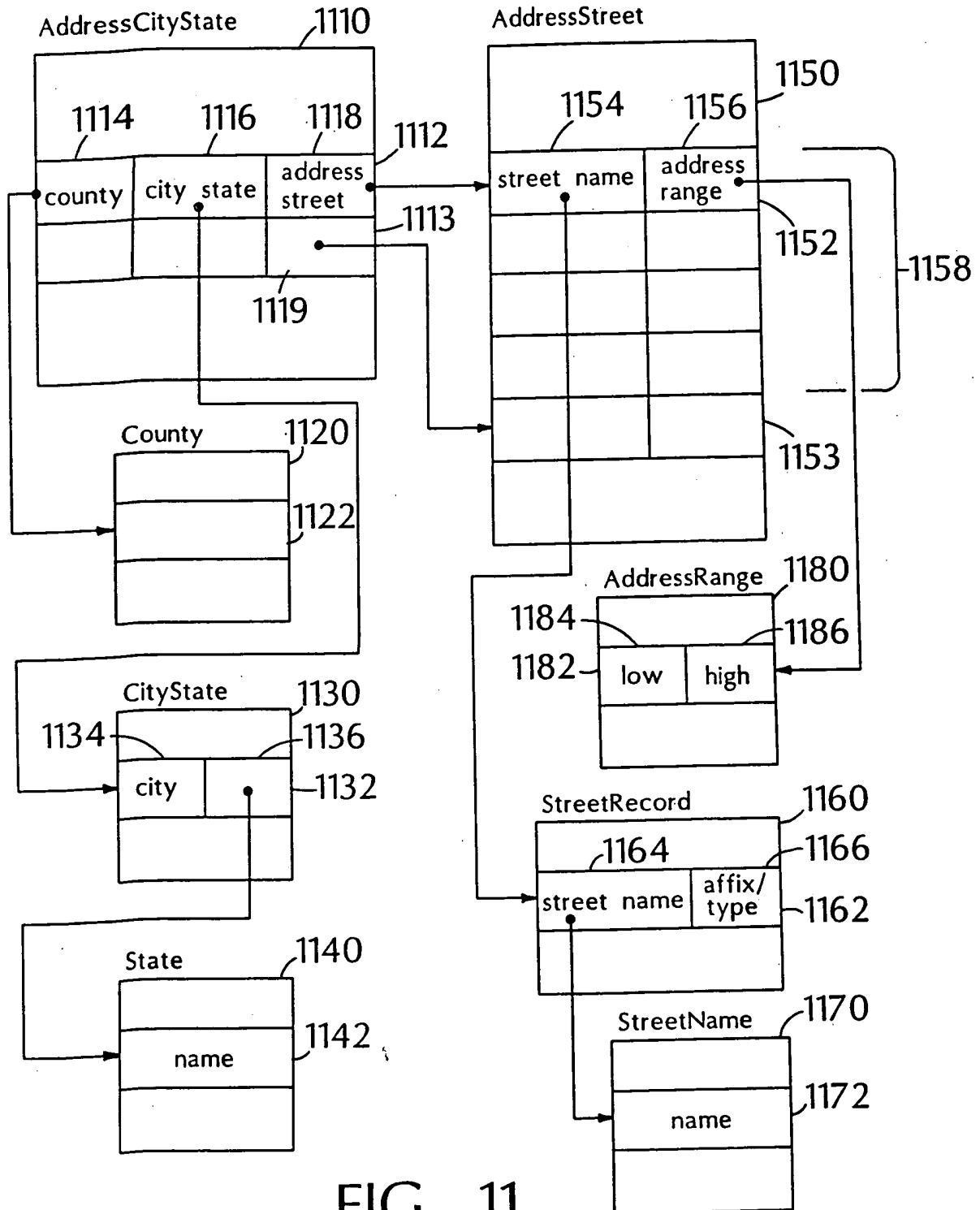


FIG. 11

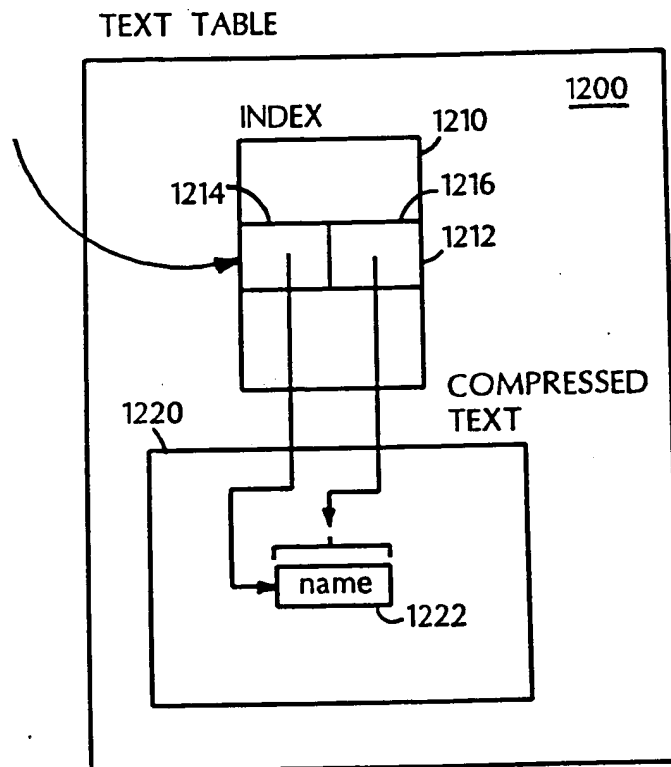


FIG. 12

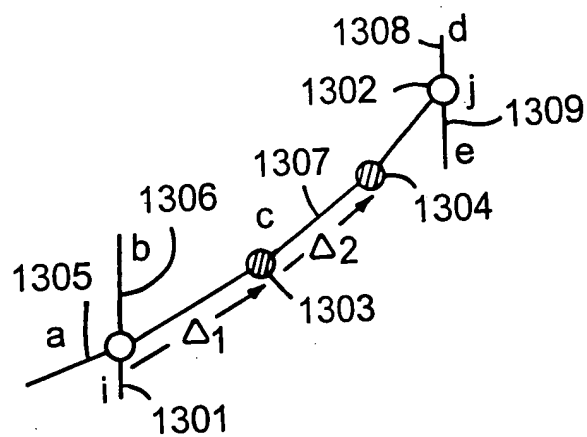
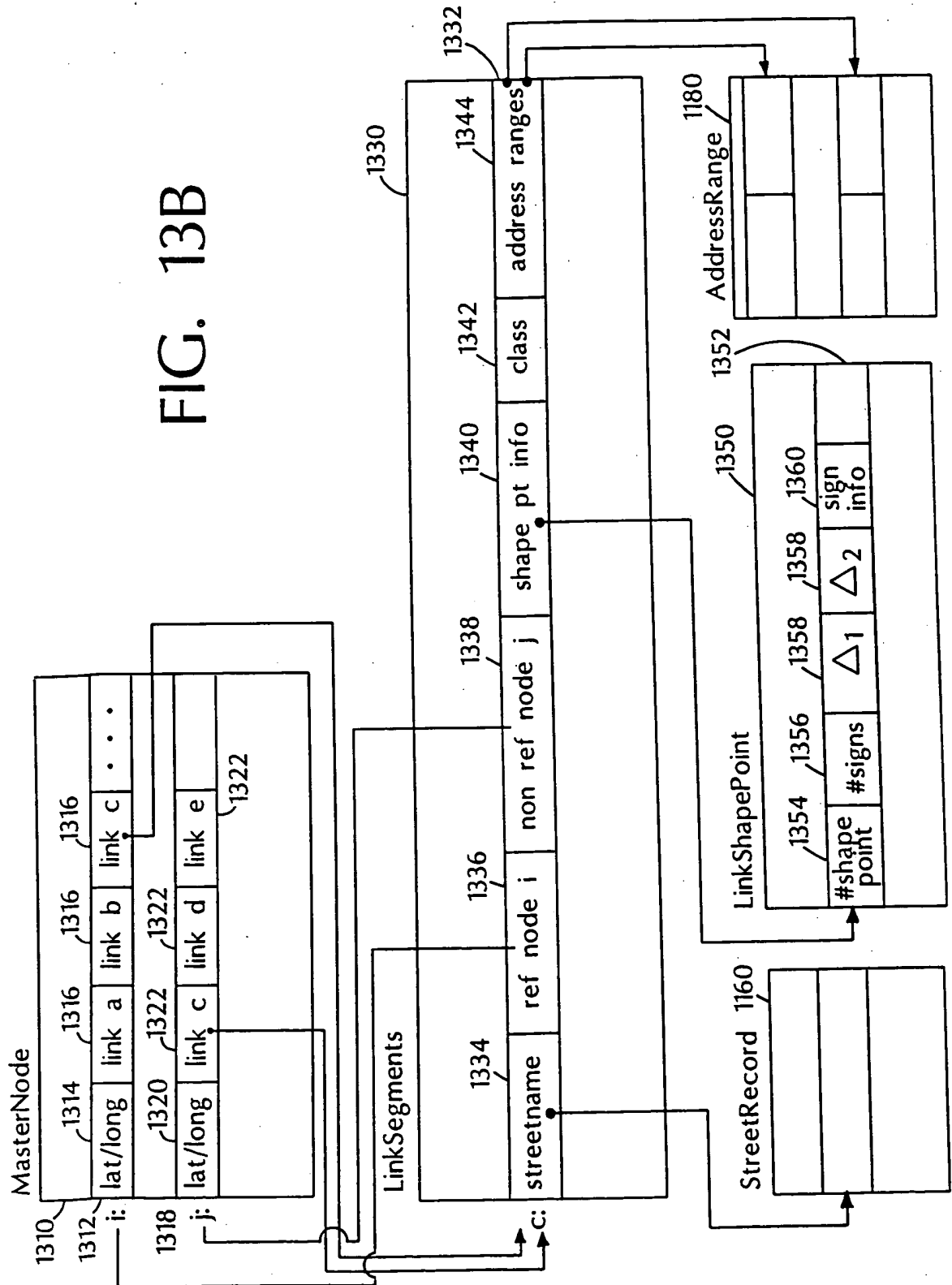
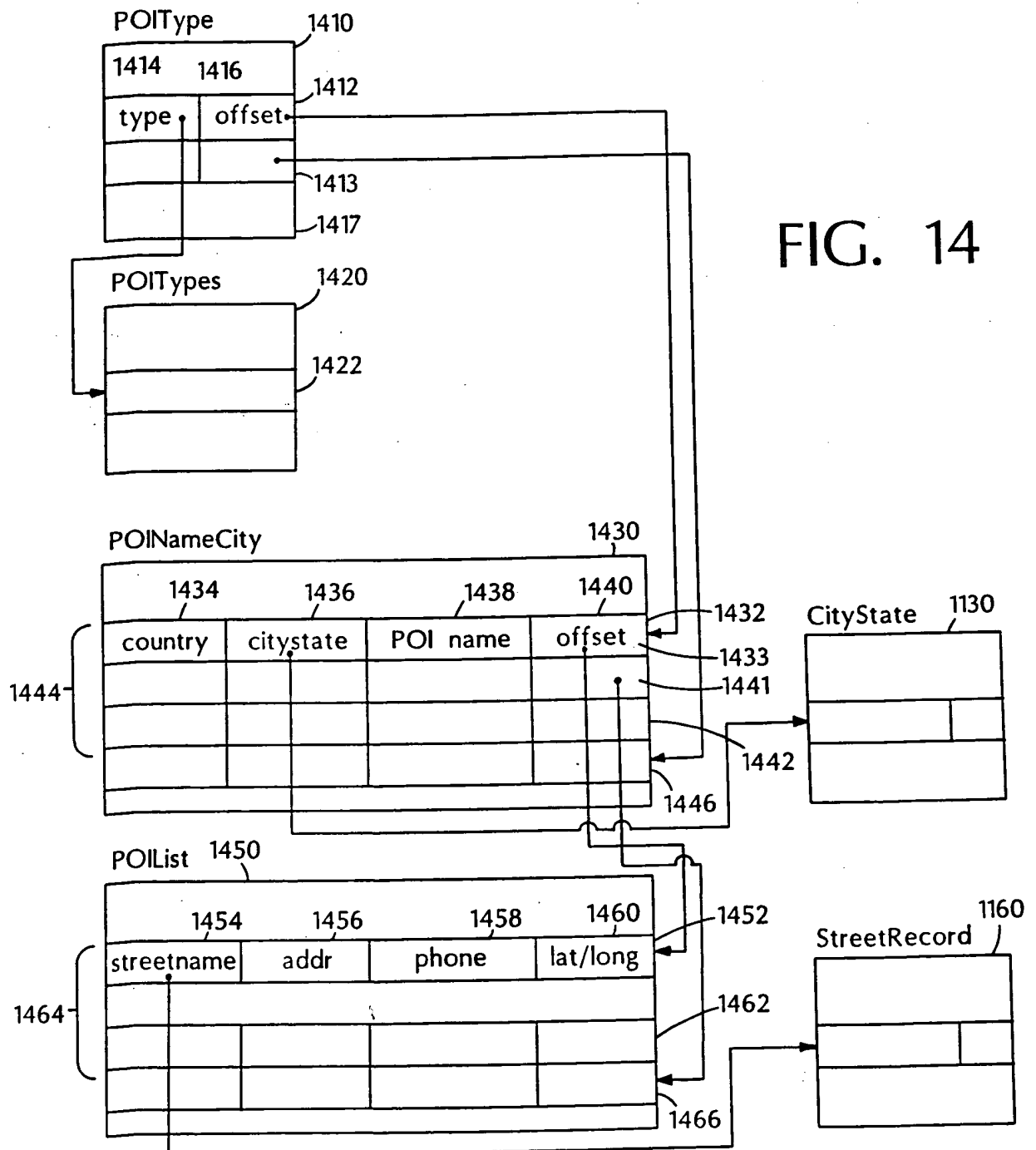


FIG. 13A

FIG. 13B







1501      **Plan Route (In-Vehicle):**

1502      Accept Destination Specification from Operator

1503      Determine Current Location Data

1504      Establish Communication Session with Server

1505      Send Destination Specification and Current Location Data to Server

1506      IF Destination Specification Requires Server Interaction THEN

1507          Accept Secondary Destination Specification Data from Server

1508          Accept Secondary Destination Specification from Operator

1509          Send Secondary Destination Specification to Server

1510      END IF

1511      Wait for Server Response

1512      Receive Planned Route, Spot Map, and Differential GPS Data from Server

1513      Close Communication Session with Server

**FIG. 15A**

1551      **Plan Route (Server):**

1552      Accept Communication Session with Vehicle

1553      Receive Destination Specification and Current Location Data from Vehicle

1554      Determine DGPS Correction Data

1555      Determine Vehicle Location

1556      IF Destination Specification Requires Further Operator Input THEN

1557          Determine Secondary Destination Specification Data

1558          Send Secondary Destination Specification Data to Vehicle

1559          Receive Secondary Destination Specification from Vehicle

1560      END IF

1561      Determine Planned Route to Specified Destination

1562      Determine Spot Map near Vehicle Location

1563      Send Planned Route, Spot Map, and DGPS Data to Vehicle

1564      Close Communication Session with Vehicle

**FIG. 15B**

1601       **Startup Maneuvers:**

1602       Initialize Estimated Location using Differential GPS Data

1603       WHILE Estimated Location is not at a Point of the Planned Route DO

1604               Track Estimated Location using (D)GPS Data

1605               Display Spot Map and Estimated Location on Display

1606       END WHILE

## FIG. 16

1801       **Replan Route:**

1802       Estimate Vehicle Location of Main Roads Network using

1803               Dead-Reconing Location

1804       Calculate Best Route to a Maneuver or Way Point on the Previous

1805               Planned Route

1806       Replace Planned Route with Newly Calculated Route

1807       GOTO Follow Route

## FIG. 18

```
1701 Follow Route:
1702 FOR Each Link on Planned Route DO
1703     At Initial Maneuver Initialize Off-Route Tolerance
1704     WHILE Vehicle Is Travelling to the Next Maneuver Point DO
1705         Increase Off-Route Tolerance
1706         Track Dead-Reckoning Location
1707         Track (D)GPS Location
1708         IF (Dead-Reckoning Location is more than Off-Route Tolerance
1709             from (D)GPS Location THEN
1710             GOTO Replan Route
1711         END IF
1712         IF Dead-Reckoning Location is within Maneuver
1713             Notification Window THEN
1714             Notify Operator of Next Maneuver
1715         END IF
1716         IF Dead-Reckoning Location is within Maneuver
1717             Detection Window THEN
1718             IF Next Maneuver is Detected THEN
1719                 Update Dead-Reckoning Location
1720                 Update DGPS Data
1721             END IF
1722         END IF
1723     UNTIL Maneuver was Detected OR
1724         Vehicle Leaves Maneuver Detection Window
1725 UNTIL Destination is Reached
```

FIG. 17

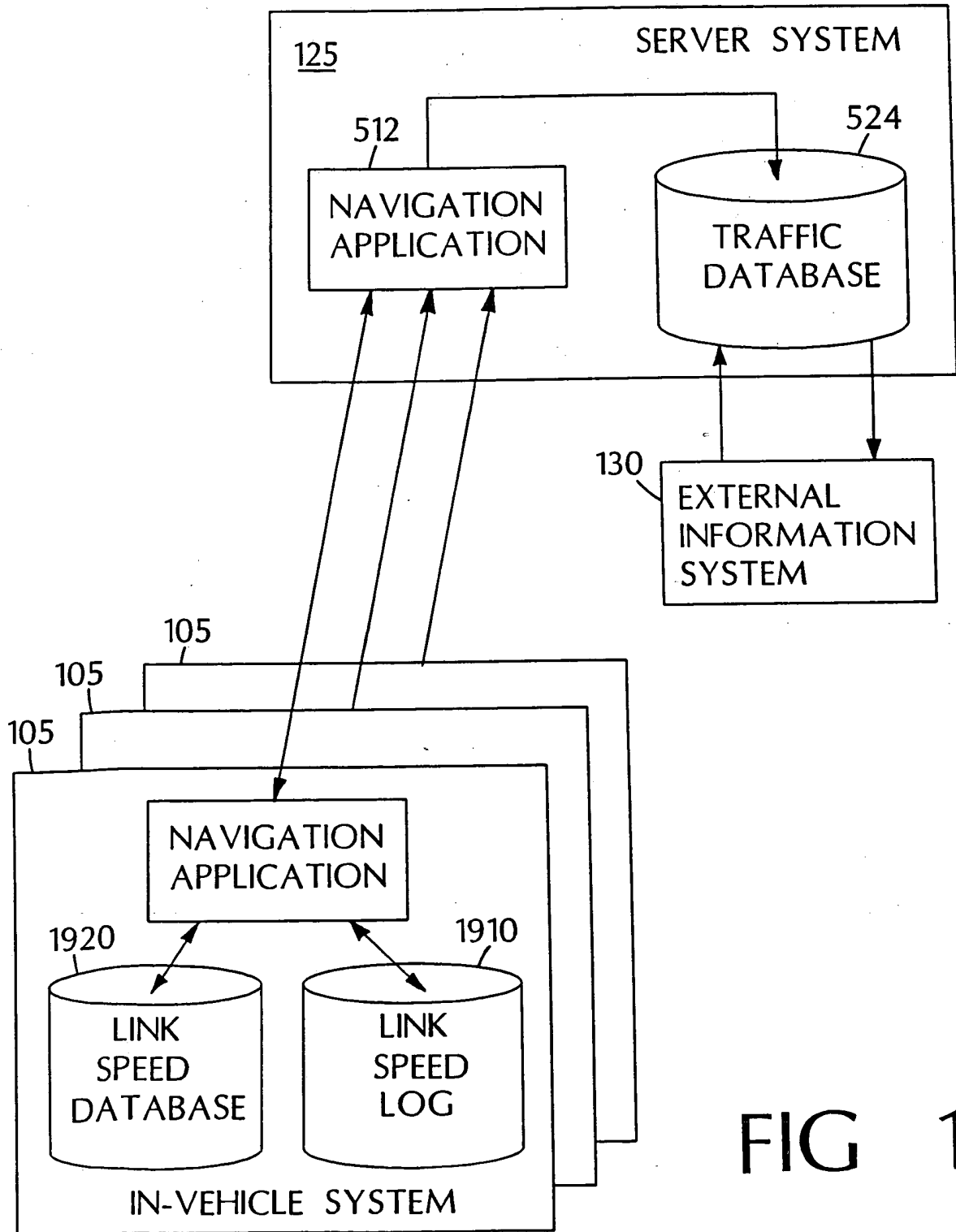


FIG 19

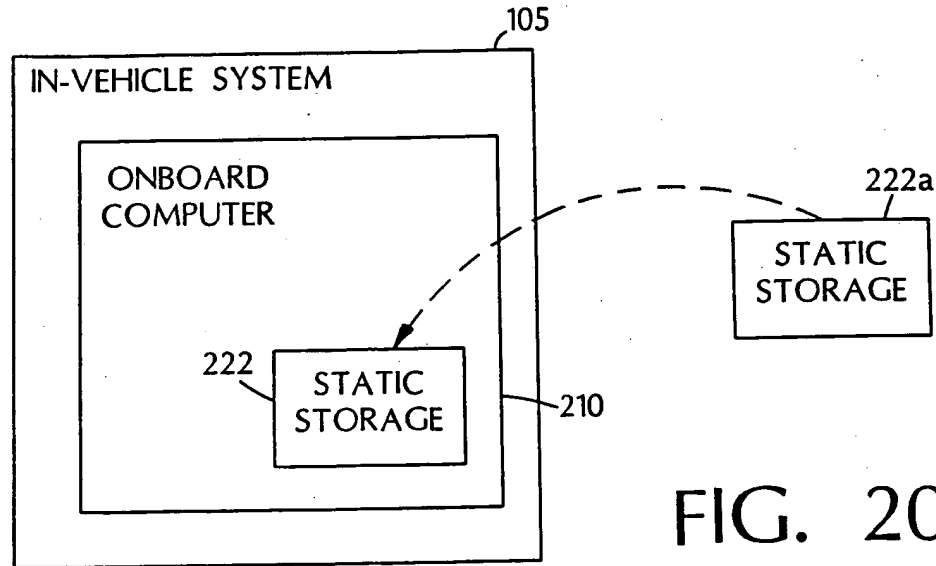


FIG. 20A

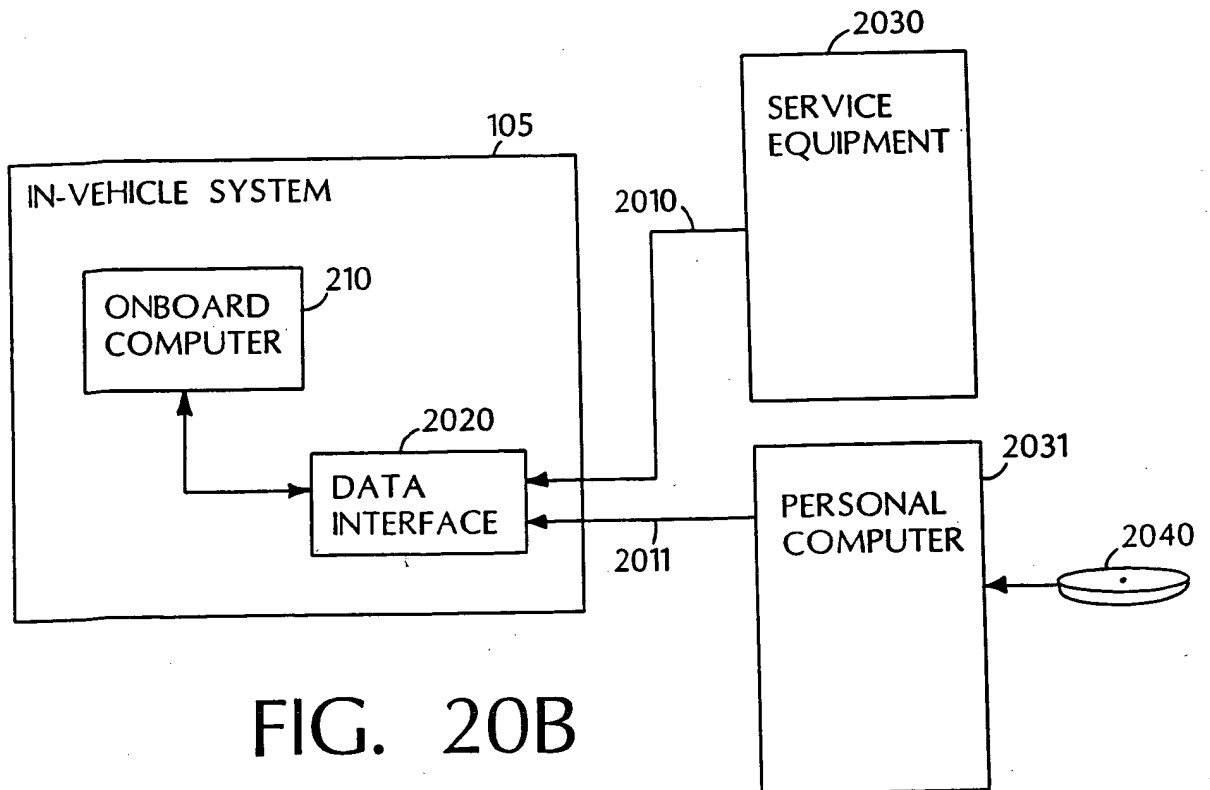


FIG. 20B

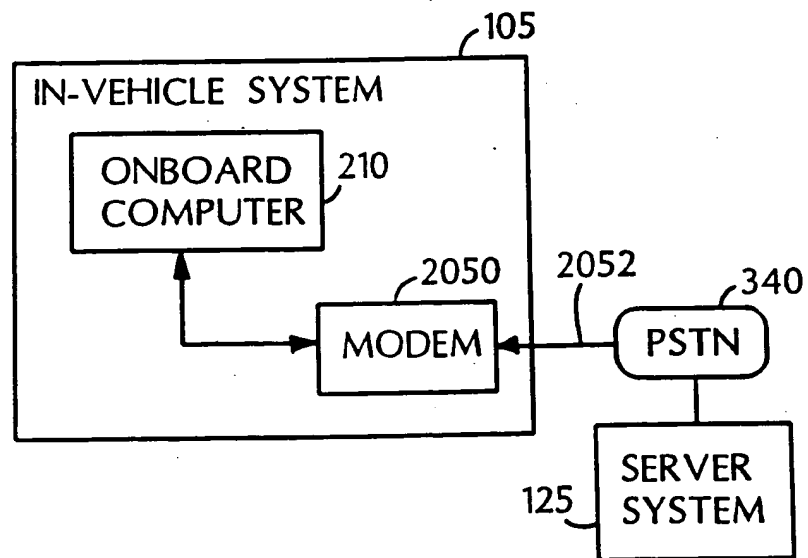
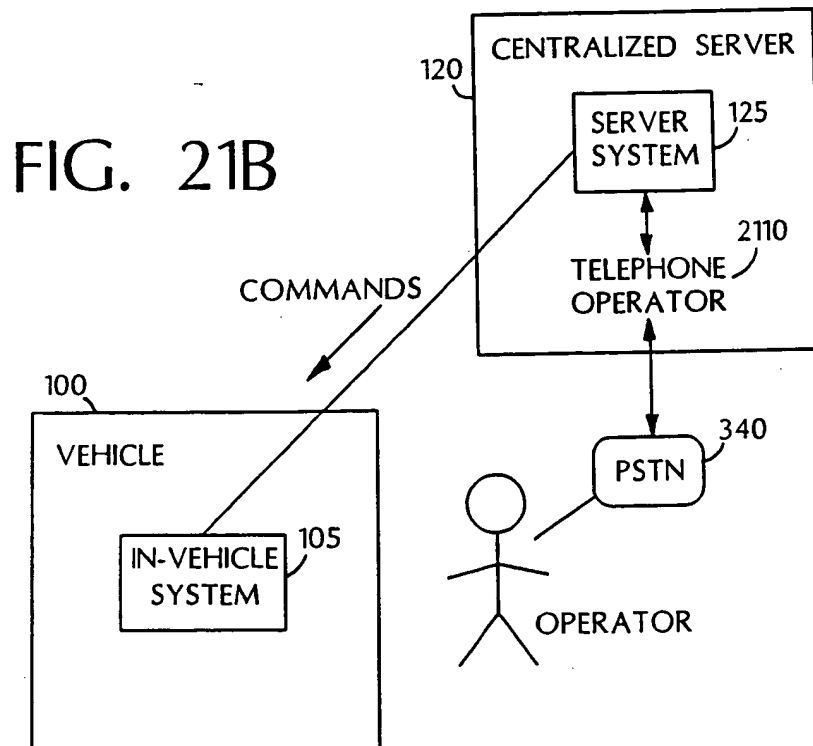
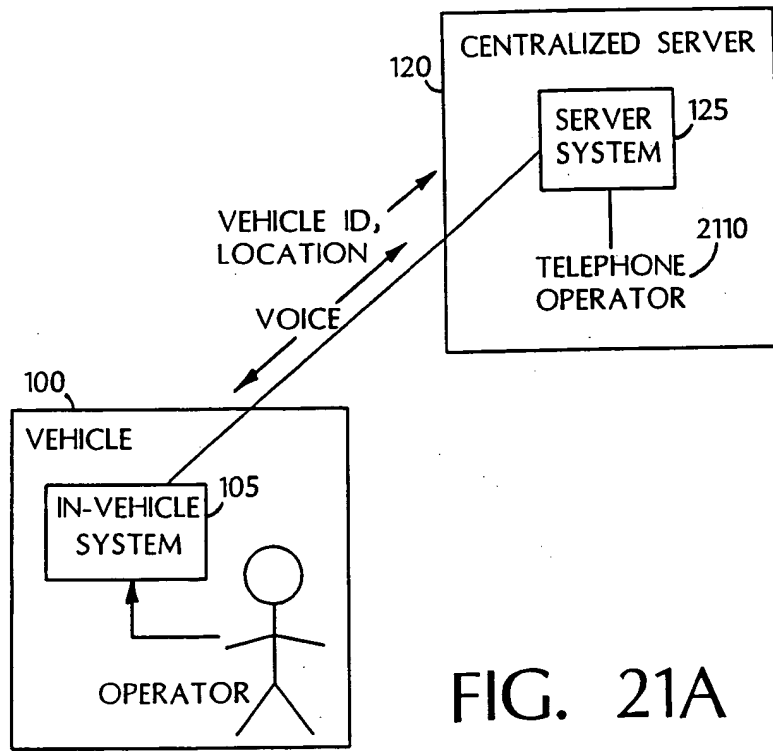


FIG. 20C





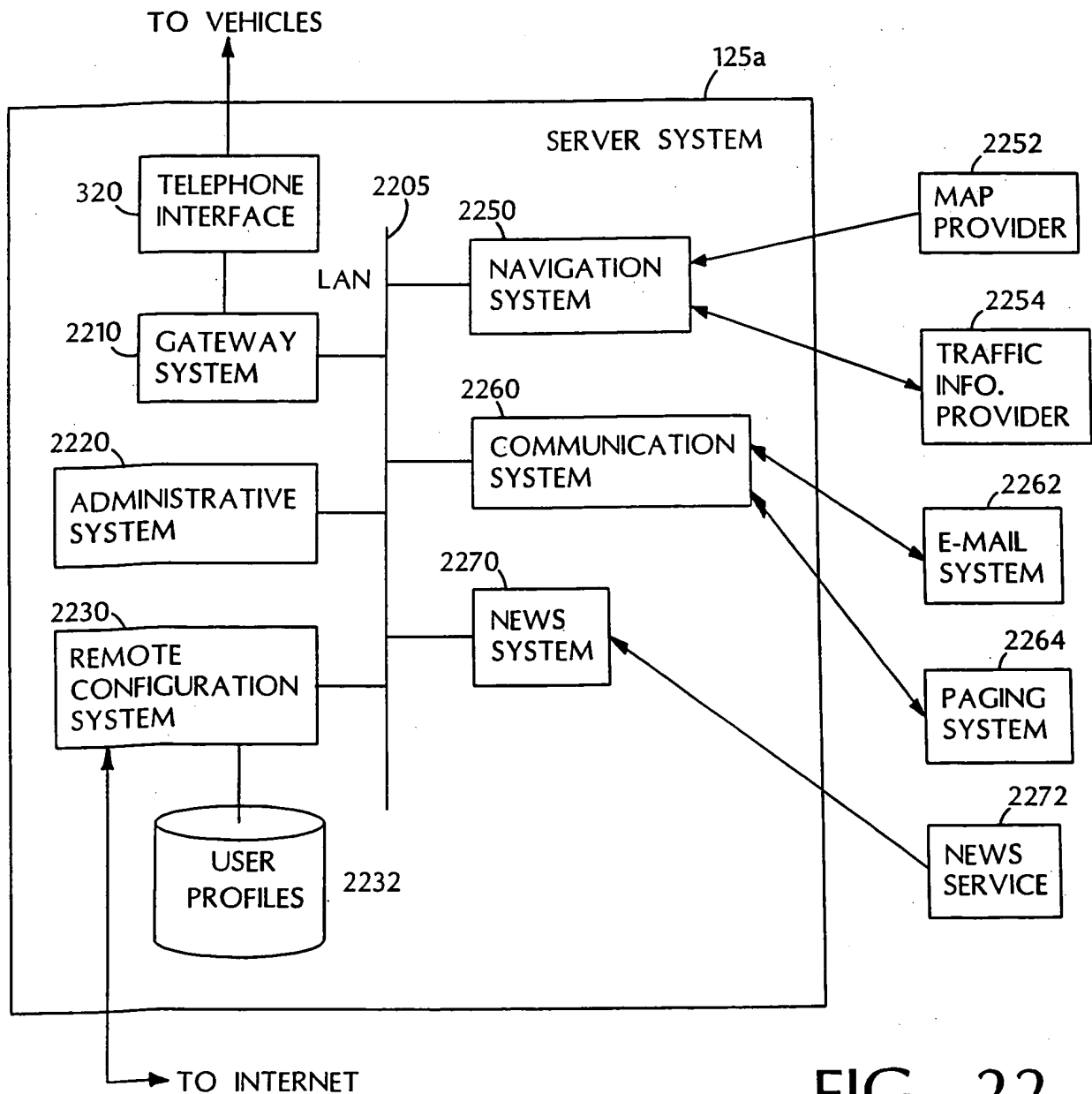


FIG. 22